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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,810	10/01/2001	Alan F. Graves	86114-15	3412

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EXAMINER

WANG, QUAN ZHEN

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/965,810	GRAVES, ALAN F.	
	Examiner	Art Unit	
	Quan-Zhen Wang	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-16 is/are allowed.
- 6) ☒ Claim(s) 17,24-26 and 31 is/are rejected.
- 7) ☒ Claim(s) 18-23, 27-30, and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 17, 25, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu et al. (U.S. Patent Application Publication US 2002/0191247 A1) in view of Cai et al. (U.S. Patent US 6,330,383 B1).

Regarding claim 17, Lu teaches a switch for optical signals (fig. 2, combinations of switch 440 and ATT/COMP 470), comprising: a plurality of optical input ports for accepting a first plurality of optical signals (fig. 2, input to switch 440 from DEMUX 480); a plurality of optical output ports for providing a second plurality of optical signals (fig. 2, output from ATT/COMP 470 to MUX 460); a switch matrix (fig. 2, switch 440) connecting said plurality of optical input ports to said plurality of optical output ports; and a dispersion compensation subsystem (fig. 2, ATT/COMP 470) adapted to provide variable dispersion compensation to the optical signals (paragraphs 0056 and 0057, page 4). The system of Lu differs from the claimed invention in that Lu does not specifically teach that the dispersion compensation subsystem includes a dispersion discrimination. However, it is well known in the art to include a dispersion discrimination in a dispersion compensation system. For example, Cai teaches a dispersion

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compensation system includes a dispersion discrimination (fig. 10B, dispersion analyzer 1030). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a dispersion compensation subsystem with dispersion discrimination, such as the one taught by Cai, into the system of Lu in order to provide variable dispersion compensation to the signals.

The modified system of Lu and Cai further differs from the claimed invention in that Lu and Cai do not specifically teach that the dispersion discrimination and compensation subsystem is adapted to provide variable dispersion compensation to the first plurality of optical signals. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to relocate the dispersion discrimination and compensation subsystem in the modified system of Lu and Cai such that the dispersion discrimination and compensation subsystem is adapted to provide variable dispersion compensation to the first plurality of optical signals, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Regarding claims 25 and 31, Lu further teaches that the first plurality of optical signals is a WDM signal (fig. 2, signals from DEMUX 480); the switch inherently comprises a plurality of per-wavelength switching planes; the switch further comprises a plurality of wavelength division demultiplexing (WDD) devices (fig. 2, DEMUX 480); a plurality of wavelength division multiplexing (WDM) devices (fig. 2, MUX 460).

2. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lu et al. (U.S. Patent Application Publication US 2002/0191247 A1) in view of Cai et al. (U.S. Patent US 6,330,383 B1) and further in view of Gloeckner et al. (U.S. Patent US 6,445,841 B1).

Regarding claim 24, the modified system of Lu and Cai differs from the claimed invention in that Lu and Cai do not specifically teach do not teach to connect a verification optical link of an optical switch to the processor. However, it is well known in the art to connect a verification optical link of an optical switch to a processor to verify the switch connections of the optical switch. For example, Gloeckner et al. disclose a path integrity verification subsystem comprising a first verification optical link (fig. 10A, the link to 1020) and a second verification optical link (fig. 10A, the link to 1010) monitoring the switching function (input and output power) of an optical switch. Therefore, it would have been obvious for one having ordinary skill in the art at the time when the invention was made to incorporate an optical switch with a verification optical link of the switch connected to a processor, as it is taught by Gloeckner, into the modified system of Lu and Cai in order to provide the information of a possible failure of the switch.

3. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lu et al. (U.S. Patent Application Publication US 2002/0191247 A1) in view of Cai et al. (U.S. Patent US 6,330,383 B1) and further in view of Gloeckner et al. (U.S. Patent US 6,445,841 B1) and further in view of Novotny (U. S. Patent 6,625,341 B1).

Regarding claim 26, the modified system of Lu, Cai and Gloeckner differs from the claimed invention in that Lu, Cai, and Gloeckner do not specifically teach do not teach to use variable optical intensity controllers (VOICs) to provide equalization of optical power of plurality of data channels in their systems. However, it is well known in the art to use VOIC to equalize optical powers of plurality channels. For example, Novotny teaches to use variable optical intensity controllers (variable optical attenuator, column 6, lines 52-54) in his optical switch to result an optical switch with equalization (column 6, lines 54). Therefore, it would have been obvious for one having ordinary skill in the art at the time when the invention was made to incorporate the variable optical intensity controllers (VOICs), as it is taught by Novotny, into the modified system of Lu, Cai and Gloeckner in order to equalize optical power of the plurality of data channels.

Allowable Subject Matter

4. Claims 8-16 are allowed.
5. Claims 18-23, 27-30, and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. The following is a statement of reasons for the indication of allowable subject matter:

Claims 8-16 are allowable since the prior art of record does not teach or suggest in combination a front end selector (FES) having an FES output and also having a plurality of FES inputs each connected to the output of a respective one of said plurality

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of anti-dispersive elements, each FES input accepting a respective one of the plurality of second multi-channel optical signals, said FES being adapted to select an FES input from the plurality of FES inputs, to select a single channel in the optical signal present at the selected FES input and to provide the selected channel to the FES output; a dispersion discriminator connected to the FES output and adapted to determine a dispersion characteristic of the optical signal present at the FES output, said dispersion discriminator being further adapted to generate a second control signal indicative of the dispersion characteristic of the optical signal present at the FES output; and a processor connected to said dispersion discriminator and to said plurality of anti-dispersive elements, said processor being adapted to generate, as a function of the second control signal, the first control signal for the anti-dispersive element whose output is connected to the selected FES input, thereby to exert feedback control of the dispersion compensation applied by that anti-dispersive element, in addition to other limitations recited in claims 8-16.

Claims 18-23, 27-30 and 32 are allowable since the prior art of record does not teach or suggest in combination a front end selector (FES) having an FES output and also having a plurality of FES inputs each connected to the output of a respective one of the plurality of anti-dispersive elements, each FES input accepting a respective one of the plurality of second multi-channel optical signals, said FES being adapted to select an FES input from the plurality of FES inputs, to select a single channel in the optical signal present at the selected FES input and to provide the selected channel to the FES output; a dispersion discriminator connected to the FES output and adapted to

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determine a dispersion characteristic of the optical signal present at the FES output, said dispersion discriminator being further adapted to generate a second control signal indicative of the dispersion characteristic of the optical signal present at the FES output; and a processor connected to the dispersion discriminator and to the plurality of anti-dispersive elements, said processor being adapted to generate, as a function of the second control signal, the first control signal for the anti-dispersive element whose output is connected to the selected FES input, thereby to exert feedback control of the dispersion compensation applied by that anti-dispersive element, in addition to other claims recited in claims 18-23.

Response to Amendment

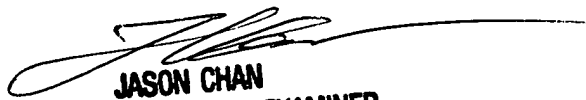
Applicant's arguments with respect to claims 17, 24-26, and 31 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qzw
05/15/05


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